AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

" O fortunatos nimium sua si bona norint
" Agricolas." . . . . . VIRG.

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AGRICULTURE.

From the Bath and West of England Society Papers Vol. X.

AN ESSAY ON MANURES,

BY ARTHUR YOUNG, ESQ.

(CONCLUDED.)

CHAPTER II.

§. 3.—*Coal Ashes*

Are used all over the kingdom. The quantity is from fifty to two hundred bushels per acre. All sorts of ashes have been found most effective when spread on clover, sanfoin, or other *seeds* in the spring. They are good also on grass lands, and are by many used on green wheat. The effect is considerable in Hertfordshire, of fifty to sixty bushels on dry chalk lands. They answer best of all on dry, sound, rich loams; but on clays, and wet gravels, and loams, they make a very poor return. Mr. Dan, of Kent, compared the finely-sifted ashes of London with the coarse ash and cinders of Chatham barracks, not kept under cover, and these last much exceeded the others in value. These ashes contain carbon and hydrogen, a great quantity of carbonic acid gas, and some iron. Our knowledge of them and their properties is very imperfect.

§. 4.—*Soot.*

This substance is composed of oil, volatile alkali, carbon, and earth; consequently, of hydrogen, nitrogen, carbon, and phosphorus. No wonder therefore that it should be found a very powerful manure All its component parts are also in a state of such minute division, that they are not only washed into the soil by a single shower, but convertible immediately into the food of plants. The effect is visible after rain in a few days. Twenty bushels per acre are the more common quantity, applied in the spring to green wheat or clover. The effect is great on most soils, least upon strong or wet clay.

§. 5.—*Peat-Dust.*

If the peat be black and solid, it is resolvable into a greater proportion of hydrogen gas than most other substances. And as it will hereafter be shewn that this gas is one of the most powerful manures which can be applied, it is consistent with chymical principles that it should operate as a strong manure. Many peats contain also much iron; and consequently, if the soil be deficient in that substance, it must be further beneficial. Another quality is its strong attraction of humidity, which renders it very advantageous on dry sandy soils. The use of it as a manure is by no means so general as it might be. But in Bedfordshire, and the neighboring part of Hertfordshire, this application of a very ferruginous peat is well known and practised.

Some scattered experiments have been made which are interesting.* Mr. Farey asserts it to be the best possible dressing for onions.

§. 6.—*Potash Waste.*

The makers of pot-ash, if they do not farm themselves, sell large quantities of their waste, which consists of lixiviated wood-ashes. They are not a powerful manure; and no wonder, after the alkaline salt is extracted. Ten loads an acre, or three hundred and fifty bushels, are a common quantity. They do good on low meadows, and in general on all grass lands.

§. 7.—*Sugar-Baker's Waste.*

I never tried this manure, but I have been informed that it is a powerful one. There are not more than five or six places in the three kingdoms where it is to be procured. I have not yet found that sugar itself acts as a manure, which however demands further trial, as it ought to be powerful.

§. 8.—*Tunners' Bark.*

The tanning principle is I believe in all cases hostile to vegetation. Whatever benefit is derived therefore from the application of tanner's waste, must arise either from the lime or the animal impregnation. I have tried bark more than once, to the quantity of two or three waggon-loads; but I could not perceive the smallest benefit derived from it during two years. Whether or not it afterwards yielded any, I am not able to speak; and it would depend on the manures afterwards added. If useful any where, it ought to be on calcareous soils Mixed with lime, it has been found useful in Warwickshire.* With Mr. Townley it did mischief. Land without manure gave 154 bushels; with stable dung 315; bark 35.†

§. 9.—*Malt Dust.*

There is no part of the kingdom in which this substance is not applied as a manure, and every where with success. Besides this general experience, a few particular experiments have been made on it. Mr. Flower, of Nottinghamshire, compared, 1. malt-combs, 2. ground bones, 3 horn shavings, 4. stable-dung, 5. salt, 6. Van Kaake's powder, on Grass land. The order of success was, 1. malt combs, 2. stable-dung, 3. and 4. horn shavings and bone dust, which were equal; salt, and Van Kaake, good for nothing.‡ Mr. Middleton, upon a tenacious loam on a yellow clay bottom, tried from fifty to sixty bushels per acre, and found the benefit considerable, ensuring one large crop. But on meadow with hay at £5. a ton, it only repaid the first cost.§ Lisle, who was a truly practical farmer, used this manure for many years. Eighty bushels an acre exceeded dung on clay land for wheat, and gave an improved barley crop after. It gave a great improvement on cold grass land also. The *kiln* dust that comes through the hair cloth was used; the *tail* dust was applied to feed pigs. From twenty to forty bushels per acre are applied in Hertfordshire. I have used it various times, and on several soils, and always with success.

The effect may be attributed to two circumstances. First, it has undergone heat which we have found may have effect, the causes of which are not well understood. Secondly, and chiefly, it contains portions of the germinating parts of the barley in the saccharine state; and containing hydrogen and carbon, cannot fail of yielding the direct food of plants.

§. 10.—*Rape Cake*

Has been in common use in Norfolk for above fifty years, and the quantity very generally, while it was to be had at £4 and £4 10s. per ton, was half a ton per acre. But it has of late years been of double that price, and the quantity per acre has been lessened in proportion as the price advanced. A ton is now applied to three acres; and by a very useful practice of Mr. Coke's, (that of drilling it in *powder* with turnip seed) he makes a ton do for five or six acres. Before this invention it used to be broken into very small pieces, and in that state ploughed in about six weeks before the seed earth, to give it time to dissolve in the soil. Ploughed in with wheat seed it hath been found more forcing to the crop than either dung or fold; but the turnips after the wheat have not been so good as after those manures.* The Marquis of Exeter† compared two quarters per acre of rape dust, at 200s. per quarter, against two dressings, one of yard dung, the other of lime; the soil a creach lime stone; the rape dust superior. Malt dust and soot for wheat were equal; but rape dust better than either. The operation of this manure is assignable to a very obvious theory. All oleaginous bodies abound greatly with hydrogen and carbon, their utility consequently must be great.

CHAPTER III.

Of Fossil Manures.

The snbstances most commonly purchased as manures in this kingdom, of this nature, are few. There are none that demand attention, except,

1. Coal-ashes.
2. Salt.
3. Gypsum.
4. Lime.

The first of these, for reasons already given, has been classed with other ashes, and the fourth treated of in the first division of this memoir.

§. 1.—*Of Salt.*

By various experiments, and by observations made apparently with care, but too numerous to be detailed,‡ it is decided, that sea-salt acts as a manure in some cases to a degree that proves its excellence, when properly applied. I am aware that other persons have reported unfavorably of it; but the general knowledge of this manure is in its infancy, for want of more trials being satisfactorily made. Several prove that the quantity applied should be very small, and that quantity is not ascertained. Errors therefore may easily be made in this, as well as in other points, and cause those unfavorable reports which more care and attention would have prevented. I have, during several years, made experiments on this substance, and scarcely one that did not tend to convince me of the fact that it is a powerful manure; and especially when added to any dung or dunghills; and I was so much convinced of the fact as to strew a small portion to all yard manures at the time of filling.

If with these facts of practice we combine certain chymical ones remarked by eminent writers, we shall not hesitate upon the point, but clearly perceive that such results are conformable to the *nature* and *properties* of this substance.

" The application of sea-water to vegetables generates putrescent hepatic gas, caused by the mixture of vegetable juices with the vitriolic neutral salts contained in sea water. Muriat of magnesia forms one-fourth of the saline matter of sea water Very considerable benefit has been experienced from its use in promoting vegetation, when mixed with dung or compost dunghills. It possesses a septic power that promotes putrefaction."§

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* Annals, vol. xx. Wright's Husbandry, vol. iii.

* Report. † Farmer's Magazine, vol. iv.
‡ Report. § Society's Transactions, vol. xvii.

* Annals, vol. ii. † Ibid. vol. xxix.

‡ To render these papers as brief as I can, I shall only refer to the authors who report this fact.—Roalfe's Addenda to Manures, 4 to 35. Hunter's Evelyn, p. 43. Bishop Watson's Chymical Essays, vol. ii. p. 75. Wight, vol. i. p. 246; vol. iii. p. 302. Baker, p. 15. Boerhaave, p. 196. Hollingshead, p. 27, 58. Communication to the Board of Agriculture, vol. i. p. 361. Annals, vol. i. p. 147, 260; vol iii. p. 19; vol v. p. 149, 527; vol. xxviii. p. 200, and many others.

§ Lord Dundonald.

"One hundred parts of sea salt contain fifty-three parts of alkali, (soda) and forty-seven of acid."†

"Sea salt acts probably as an assistant to putrefaction,"‡ "One ounce in twelve accelerates that of animal substances."§ "The conversion of sea salt into an alkali by putrefaction leaves no room to doubt of its benefit."‖

André and Parmentier are against salt, and yet prove that putrefaction decomposes muriatic salts.¶ Did they ever try soda?

§. 2.—*Of Gypsum.*

I know not any manure concerning which the reports of experimenters have been so contradictory as in the case of gypsum. Many persons have asserted that it is no manure, and that on trial no benefit whatever has resulted from its application; whilst others have registered series of experiments for years, in which it has been almost uniformly advantageous.

In this state of our knowledge we are bound, as in the preceding section, to accept the favorable reports, and attribute the failure to soil, season, or some unrelated circumstance. In the 5th volume of your Society's Transactions are recited, from American and other intelligence, many valuable facts, proving the importance of this manure. In various foreign publications, accounts are detailed of similar results in Germany, where the trade in this commodity has so much increased as to occasion new transit duties to be laid on it by several princes. In the Transactions of the New York Agricultural Society the reports are numerous, and the results such as will not permit any doubt of the benefit derived from the use of this manure.

The following are Mr. Logan's conclusions from various trials: 1. That there is no difference between European and American gypsum. 2d. That it acts as an immediate manure to grass, and afterwards in an equal degree to grain 3d. That one dressing will continue in force several succeeding crops. 4th. That it does not produce any remarkable effects used as a top-dressing for grain. 5th. On stiff clay soils it will produce an increase of vegetation, but not sufficient to pay the expense of the manure.

Mr. Chancellor's Livingston's conclusions from many experiments are, 1. That gypsum in small quantities, has no visible effect on wheat or rye. 2d. That it is uniformly beneficial to Indian corn, unless it be in very rich or very wet soils. 3d. That it is beneficial to flax on dry, poor, sandy land. 4th. That it is particularly adapted to the growth of clover in all dry soils, or even in wet soils in a dry season. 5th. That it has no effect in the vicinity of the sea.

But the most extraordinary account of this manure is from Mr. Smith, of Kent, communicated to the Board of Agriculture; in which the profit of it is stated to be immense on clover, lucern, sanfoin, and several other crops.

That various results should be experienced, and even on the same soil, appears probable from a trial of three years, registered in a periodical work,* in which it gave no increase in two years trials, but a very considerable one in a third year's trial, caused probably by a heavy rain soon after the application.

The quantity per acre seems to have been very generally about six bushels.

Of Composts.

Experiments on mixtures are so extremely difficult to make, so as to be attended with accurate results, that I must, under this head, do, what is ever to a degree unsatisfactory—reason upon the question. I cannot bring my mind to conceive the use of composts.

If to spread earth, peat, or a calcareous substance, where a dunghill is intended to be made, to retain urine that would otherwise be lost, this is right; but as a compost it has nothing to do with the question. To spread a thin layer on the surface of a dunghill, to retain the gaseous effluvia which would otherwise be dissipated, this also is right; but it bears not upon the enquiry.

It is said that certain substances promote fermentation, *therefore* I would not add them. Fermentation yields the gasses which fly off into the atmosphere; the nose explains this sufficiently If unfermented substances were annihilated under the furrow, previous fermentation would be necessary; but we know that the contrary is the fact; and that not an atom is lost. By mixture a *tertium quid* is sometimes formed, but nineteen times in twenty this is gaseous and dissipated. The only rational pretence for a compost is in order to *gain* any additional substance. But to get *rid* of an evil; suppose the mud out of a pond is found to be steril from acidity, it would be right to add pot ash in any of its forms, or lime, or chalk; but here ends the benefit of composts. I do not admit, till experiments are more decided, that the circumstance extends to peat. It is at least doubtful, as the application of the substance has been found highly beneficial without any such mixture. I know of no experiments that are in the least decisive of advantages, which may not be fairly attributed to the separate and detached application of the substances mixed. I have not been inattentive to that mass of ingenious theory, the Chapter on Manures in Darwin's Phytologia; some passages in which might be quoted against these ideas. But I conceive, the only possibility of promoting science is to rely on the facts, and to confine theory to conclusions drawn from them.

However, I like so little mere reasoning on any agricultural question, that I shall not extend these observations.

On the Food of Plants.

All organized bodies are resolvable into hydrogen, nitrogen, oxygen, carbon, phosphorus, and sulphur.

Mr. Bertholet's great discovery, that the essential difference between animal and vegetable substances is the former containing nitrogen, the latter none,* reduces the list of component parts.

By a series of well known experiments of Ingenhouz, Senebier, &c. oxygen appears as it were to be excrementitiously thrown off by vegetables in sunshine, to the great purification of the atmosphere for the use of animal respiration, in which operation the vegetable decomposing a noxious gas absorbs what would injure respirable air, and leaves that which benefits it: a remarkable instance of that Divine Wisdom, which appears the more clearly, in proportion as the works of creation are examined.

From experiments extremely numerous, and observations made by eminent chymists, it appears, that the two substances which play the greatest parts in vegetation, are hydrogen and carbon. The presence of light and heat is always to be supposed.

In the list of Manures which have been detailed in the preceding Chapters, some have been noticed as acting mechanically, giving either friability or tenacity, or powers of promoting fermentation; the product of which is carbon or hydrogen. Those which actually feed vegetables abound with, or are reducible to, these substances.

The importance of water in vegetation needs not to be insisted on. The immediate decomposition of this compound substance by vegetables, has not been clearly elucidated. But Senebier notes the great probability that the hydrogen combining with carbon forms oily and resinous matters: and we know that oxygen is thrown off by leaves. Chaptal, and Dr. Pearson, expressly declare this decomposition. Of these two substances, hydrogen and carbon, of such undoubted importance, to which of them are we to assign the great effects observable from their application? Hazenfratz, and Mr. Kirwan, are decided for carbon. But Dr. Pearson combats the idea, and contends, that there is no evidence of carbon proving nutritive, but when it is united to hydrogen and oxygen in vegetable matter; or to oxygen, hydrogen, and nitrogen, in animal matters.

Experiment has shewn, that water impregnated with carbonic acid is beneficial, and that carbonic acid gas has had a good effect. The conclusion to be drawn is not decisive; for in all these trials hydrogen might and probably did enter.

It appears by many experiments, that the fertility of soils is in proportion to the quantity of hydrogen gas they yield in distillation; and the efficacy of manures is pretty much in the same proportion. Powdered charcoal distilled yields a great quantity of hydrogen gas.

Hydrogen gas, obtained from filings of iron by sulphuric acid, I have often found highly beneficial to vegetation I do not assert that even in this case it is positively free from carbon, but the quantity is by far too small to permit the effect to be attributed to that substance.

An observation of Fourcroy throws no inconsiderable light on this subject. "Charcoal," says that eminent chymist, "decomposes water, having a greater affinity with oxygen than it has with hydrogen."

This circumstance explains much of the difficulty which attends the insolubility of charcoal in water. Mr. Kirwan says, that the grand desideratum is to discover the means of rendering charcoal soluble in water. Dr. Ingenhous says, that it is totally insoluble, and almost unalterable. But it is evident, from the observations of other chymists, that some bodies exist possessing this power. Pot-ash has this effect, according to Mr. Thomson.* And Mr. Davy and Senebier remark the same thing of pure alkalies, but not when combined with acids. Dr Darwin also remarks, that "carbon absorbs with great avidity all putrid exhalations. These consist chiefly of ammonia, hydrogen, and carbonic acid, and are the immediate products of the dissolution of animal or vegetable bodies. Hydrogen and nitrogen produce ammonia, which, combining with carbon, may form a hepar carbonis; and by thus rendering carbon soluble in water, may much contribute to the growth of vegetables." In another passage Senebier says, "he has found it insoluble in water; and that alkalies alone have the power of dissolving *some particles*." Mr. Davy remarks also, that "charcoal and water in a bottle give out slowly some heavy inflammable air." Here is the interesting circumstance: If the solution of charcoal in water, whether by time, pot-ash, or contact with soils, be attended with the extrication of hydrogen gas, no wonder that charcoal should act as a manure.

I have now before me four and twenty tumblers of water, with plants growing through pierced cork floats. Different substances are added to each; among others charcoal, which evidently acts as a powerful manure, But the superiority over the glass which has no addition, is nothing in comparison with that of plants in another apparatus, in which hydrogen gas, from iron filings and diluted sulphuric acid, is thrown up to the roots every day. The superiority here is striking to every observer.

That there is still some difficulty, must however be admitted. Chaptal observes, that gas extracted from a mixture of sulphuric acid and iron, holds more or less of charcoal in solution, because iron itself contains it.† The desideratum seems therefore to be the application of hydrogen free from carbon, as the means of really ascertaining to which substance the effect is to be attributed.

In what degree hydrogen is contained in, or formed by other substances which act as manures, is an enquiry of great importance. It is remarked,§ that sulphurated hydrogen is the base of the muriatic acid. Berthollet gives hydrogen as a component part.

No ammonia is fresh, but much in fermented urine.‡ One-fifth of ammoniac is hydrogen gas.¶

The salt obtained from plants does not consist wholly of pot-ash Sulphat of pot-ash, muriat of pot-ash sulphat of lime, phosphat of lime, are found in the ash, es.**

Pot-ash is composed of lime and hydrogen; soda, of magnesia and hydrogen.‖

† Kirwan ‡ Bishop Watson. § Pringle.
‖ Model. ¶ Senebier. * Annals.

* It is a constituent in a few plants.

* Chemical Essays, vol. iv.

† Senebier also bserves, that *iron* enters into the composition of inflammable air.

§ Manchester Memoirs, vol. v. ‡ Fourcroy
¶ Berthollet. ** Thompson. ‖ Guyton.

Magnesia is composed of lime and nitrogen; consequently, of carbon, hydrogen, and nitrogen.††

Gum is composed of oxygen, hydrogen, carbon, nitrogen, and lime.‡‡

Oils are composed of carbon and hydrogen.¶

By putrefaction, hydrogen gas is emitted in abundance.

Connection between inflammability and sulphuric substances.

If these combinations be well considered, it will appear that hydrogen is found in a very considerable number of substances which are used as manures; and that there must be some difficulty in finding a single one that does not contain, emit, or attract it

The time allowed by the Society would not admit of much exertion, except in the closet. It was incumbent however on a candidate to do what the short period permitted. I therefore formed the plan of some trials which might possibly throw a certain degree of light on the most interesting of those inquiries.

1*st*. The question relative to long and rotten dung appeared particularly interesting. I therefore compared straw cut into chaff, and applied to earths in different circumstances for barley; and the earth without any manure producing grain as 9. The straw steeped three hours in fresh urine produced as 50; steeped fifteen hours, produced as 63; steeped three days, produced 126; and applied dry, produced 39. In weight of straw and grain, the plain earth giving 48; that of three hours 120; that of fifteen hours, 150; that of three days, 300; and dry 100.

The result relative to urine is such as might be expected. But that dry straw should so much increase the produce, seems to prove as clearly as one experiment can do, that every atom of vegetable matter in the soil begins to be decomposed immediately, and to want no previous fermentation in order to enable it to feed plants.

2*d* Such eminent chymists have assigned to carbon so much importance as the food of plants, and its solution in water considered as a desideratum, that I compared it under different applications. The plain earth giving as above 9 and 48; dry powdered charcoal gave 26 and 90. Pearl-ash and charcoal in equal quantities, mixed and applied dry, gave 46 and 100. The same mixed in equal quantity, and shook in water, gave 28 and 115; but the pearl ash being applied, as I conceive from different trials, in too large quanti ty, killed four-fifths of the plants. Had this not been the case, the proportional produce would have been 140 and 575. The result in any case remarkable, pearl-ash being named by the chymist as having *little* effect in dissolving charcoal; *thus applied* to the soil, it seems to have had a very great effect. I should have remarked, that though pearl-ash, applied either alone or with charcoal, might easily be hurtful by an over-dose, yet this was not the case with the nitrate of pot-ash, (pearl ash and spirits of nitre in equal quantities) which greatly promoted vegetation, giving 82 and 185; common nitre, 35 and 84.

3*d*. The result of various experiments on gypsum in different countries, having been extremely contradictory. I was anxious to analyze its proper application. The earth, without addition, giving as above 9 and 48; gypsum alone added gave 61 and 160 And in another experiment applied in water, it doubled the force of vegetation. These results were very contrary to my expectation.

4*th* The accounts we have had of common sea salt are as contradictory as that of gypsum. The plain earth yielding as above 9 and 48; salt alone, applied in different quantities, gave 40 and 96, 50 and 120; and 48 and 90, 36 and 100, 31 and 70; but with addition of chalk it gave 68 and 175, and 40 and 120,* The result upon the whole very decisive

5*th*. At the same time, with the preceding trials, some other substances were under experiment. The plain earth, giving as above-mentioned 9 and 48; soda gave 81 and 210, a remarkable result; bay-salt 63 and 149; iron filings, 40 and 100; magnesia, 50 and 120.

If it be asked what is the practical use of such disquisitions? the premium offered by the Society answers the question. Is it conceived that so enlightened an assembly of patriots want to be informed that dung, and marle, and lime and night-soil, and malt-dust, act as manures? And would they demand an account of the *nature and properties* of substances, if the common knowledge of every sensible farmer was all they required? Their views are evidently more extensive, and more philosophical. The more carefully these substances are analyzed, and the more intimately we examine the effect of combining them with different soils, the better will this branch of agriculture be understood. This is to be effected only by the application of chymistry, going hand in hand with the vegetating process. Very few chymists have been farmers; we can therefore do no more than combine the facts discovered by one set of men, with the result of the observations made by another set.

But *viris acquirit eundo*, knowledge advances: and the turning the attention of curious enquirers to the subject, in the manner which the Bath premium, it is to be hoped, will excite, cannot fail of throwing some light on a subject which will demand an age of experiments fully to elucidate.

†† Ibid. ‡‡ Thompson. ¶ Lavoisier.

* The soil in which the trials were made, on being analyzed was found to consist of (500) grains.

Sand	136
Clay	364
Carbonate of lime	0

For the American Farmer.

Internal Improvements.

NEW-YORK AND OTHER CANALS—ROADS, &c. No 2.

We will now pay some attention to what is done, doing, and about to be done in other places.

As it is altogether consistent with human nature to submit with reluctance to circumstances which produce pain, inconvenience or mortification, it is hardly to be expected that Philadelphia and Baltimore will yield to their supposed destiny without a struggle. Great exertions have been recently made to improve the road from the former to Pittsburg. The latter has the advantage of a complete turnpike, the whole distance to Brownsville on the Monongahela, and thence to Wheeling on the Ohio, except about ten miles, which it is believed will very soon be made; the section that lies west of Cumberland is the national turnpike and is at present free of toll. The probability is that none ever will be paid except what may be necessary to keep it in repair. Now as these turnpike roads are frost proof and drought proof, it will not be surprising if the wily little merchants of these cities, should attempt to interfere in the trade, during those fractions of the year in which the intercourse with New York will be suspended by the two above mentioned agents; say four months by frost, and three by drought; during these periods they will probably be busying themselves in despatching their waggon loads of such valuable goods a will best bear the price of transportation.

The state of Virginia, amongst numerous other works in which she is successfully engaged, has projected a canal of nearly 250 miles in length, from Richmond to the mouth of Dunlap's creek, on Jackson's river, at the eastern foot of the Allegany mountain. Thence an easy road of eighty nine miles to the falls of the Kanawha, from whence it is ninety four miles to Point Pleasant, on the Ohio. With a little improvement, the Kanawha will afford an excellent river navigation of three feet water, at all times. The canal is commenced and has progressed as fast and as prosperously as could reasonably have been contemplated. It is believed that by the end of the present year it will be completed quite above the coal district, which will be a very important section. The whole of the road is contracted for, and the funds for improving the Kanawha are in hand and the work in a train of execution.

By this route the Virginians expect to transport from four to six millions of bushels of coal per annum, and probably in time a much larger quantity: An immense quantity of Tobacco, wheat, flour, and other agricultural products; also large quantities of lumber, iron and other mineral products: These will be drawn from more than twenty counties in their own state, all of which they expect to supply with merchandize, plaster, &c. through the same channel. And previous to the discovery that New York is in future to engross the whole of the trade of the Mississippi-valley, they had ever looked to a participation in the western trade. We will amuse ourselves in examining their pretensions on this subject.

In this examination we will take the introduction for our text book, and be governed by the New York rates of canal and river navigation. The cost of transporting a ton of merchandize from Albany to Buffaloe, 353 miles, is stated at $8 $\frac{53}{100}$. Then from Richmond to the mouth of Dunlap's creek, 250 miles, the cost will be $6 $\frac{4}{100}$. From the latter place to the falls of Kanawha by a complete road $9 $\frac{33}{100}$. This item is obtained in the following manner: It is stated in a pamphlet published by J. E. Howard of Baltimore, in 1818, that it had been ascertained by several millers in and near that city, that on an average of a number of years previous to that time, "The expense of supporting a team "of six horses, including interest on the pur- "chase money, driver, waggon, repairs and "keeping up the team," was found to be about $1200 per annum. Since that time there must have been a reduction in these items of at least one third, which would reduce the whole to $800, and of course it would be still lower at a distance from market But we will state the expense at $1000 Then if the 89 miles are travelled in five days with a load of three tons, the work of 300 days will give $5 $\frac{55}{100}$ per ton for the nett cost of transportation. But we are willing to allow the teamster 50 per cent on his capital and expenses, which allowing $1 for toll, will raise it to $9 $\frac{32}{100}$, the sum before stated.

It is said in the introduction that a barrel of salt can be carried from Pittsburg to Louisville for 19 cents, which at seven barrels to the ton is $1 33.

This distance is 700 miles, from the falls of the Kanawha to the Ohio is but 94 miles of at least as good navigation, and of course a ton ought to be carried this distance for 19 cents. But as a small toll will probably be demanded

after the river is improved, we will state the transportation on this section at 78 cents.—Then supposing the contemplated improvements completed, the cost of transporting a ton of merchandize from Richmond to the Ohio, and the time it will require will be

On the Canal	11 days	$6 04
On the Portage	5	9 32
On the Kanawha	4	78
Time in loading and unloading	4	2 50
	days 24	$18 64

Add to this another dollar and it will carry a ton weight of produce, from the Ohio to Richmond, (say) $19 $\frac{64}{100}$.

The following is the estimate given in the introduction relative to the time it will require for produce to pass from the Ohio to New York, when the Western and the Ohio canals are completed, and the expense per ton.

	Time.	Freight per ton.
From the Ohio river	10 days	$6 65
Lake Erie to Buffaloe	1	4 00
Buffaloe to Albany	15	12 06
Albany to New York	7	4 00
Time in loading and unloading &c.	7	4 00
	days 35	$26 65

In each of these columns there is evidently an error in the addition, when these are corrected the time will be 40 days, and the expense per ton $30 $\frac{71}{100}$. I should have supposed, however, the expense from Buffaloe to Albany ought to have been put at $8 $\frac{53}{100}$, correcting this also, the expense will stand at $27 $\frac{18}{100}$. But it appears to us that one day is a very short time for the passage from Sandusky to Buffaloe. In another part of the introduction it is stated, that the cost of transportation from New York to Sandusky will be $24.—The distance to the Ohio by the Virginia route is 433 miles. By the New York and Ohio canals nearly 1000.

Now, from estimates of this kind, the Virginians have contended that they could place a ton of merchandize on the bank of the Ohio, or could transport a ton of produce from thence to Richmond in much less time, and for considerably less money, than either could be done from and to New York, by way of the Western canal. They have also said that they have greatly the advantage in relation to certainty and safety; inasmuch as their route will seldom be interrupted by frost more than one month in the year, and that on no part of the line will their property be exposed to any thing like such a dangerous passage as must be encountered on Lake Erie.

They have even contended in addition to these, that both the time and expense from Richmond to the Ohio, will be less than it can be from New York to the Lake shore on the opposite side of the state.

But there are another set of projectors, who (previous to the late discovery) had been making their calculations to participate in some degree at least in the trade to Brownsville and Pittsburg. These are the citizens of the district of Columbia, and others who are interested in the improvement of the Potomac river. It is very well known that the tide water of this river approaches much nearer the navigable waters of the west than on that of any other Atlantic river in the union. These people have been busily employed in getting up a scheme for constructing a canal from the District to Cumberland, 188 miles. We suppose they may have indulged in something like the following calculations relative to the western trade in case their project should succeed.

Agreeably to the New York estimate, a ton of merchandize would be transported the whole length of this canal for $4 $\frac{54}{100}$. From Cumberland to Brownsville on the Monongahela is 74 miles, of national turnpike the whole distance. This will be travelled in four days by a team of six horses, carrying three tons, which at $5 per day will be $6 $\frac{66}{100}$ per ton, adding 1 dollar for toll, will make it $7 $\frac{66}{100}$; and that teams of this description can be had in these times at this rate, by giving constant employment the whole year, there appears to be no doubt. This estimate, though made from different data, agrees with the calculation made for the Virginia route, within less than one cent per day. From Brownsville to Pittsburg, is 55 miles by water, the navigation generally good; there are however a few ripples that become shallow in dry seasons, which will probably soon be improved by the state of Pennsylvania; the work is already in a state of progression, and when done, it will rarely happen that the navigation will be suspended for want of water. Agreeably to the New York calculation for carrying salt from Pittsburg to Louisville, a ton weight would be carried through the whole of this section for a few cents. But to average the descending and ascending freights when a large trade is established, it will certainly not amount to more than one dollar per ton. The account will then stand thus:

For freight and tollage on the Potomac canal	$4 54
Waggonage and toll to Brownsville	7 68
Freight to Pittsburg	1 00
To which add for loading and unloading and storage at Cumberland and Pittsburg	2 50
	$15 72

The time that would be occupied between the most distant points, allowing two days detention at Cumberland, and the same at Brownsville, would be about 19 days. But the intercourse on this line would probably be interrupted about two months in a year by ice.—It is stated in the introduction, that the expense per ton from New York to Pittsburg by way of the Western Canal, will be $35. The time that will be occupied is not given, but it cannot vary materially from the time given for the route to Ohio by way of the Ohio canal, before mentioned, which is 40 days. The distance from the District of Columbia to Pittsburg is 317 miles; from New York by the route proposed it is more than 800. On the former line it is supposed the intercourse will continue uninterrupted ten months in the year; on the latter five months is considered a full average.

When the Potomac canal is completed, it is to be expected that the hawk-eyed and jealous Baltimoreans will soon endeavour to avail themselves of the facilities that this new channel will afford for an increase of their trade, and consequent acquisition of wealth. The means will be found in a canal from the Patapsco to the Eastern branch of the Potomac; which it is believed may be easily accomplished. The ground is low and comparatively level: feeders may be drawn from the high grounds a few miles above.

Seeing then that some difficulties may possibly occur in opening communications between the western canal and the Mississippi valley, which seems hitherto to have been entirely overlooked; seeing that Philadelphia with her turnpike roads and perhaps her Susquehanna; Baltimore with her turnpikes and her Patapsco canal; Georgetown, Washington, and Alevandria, with their Potomac canal and Cumberland road; Richmond with her James River, and Kanawha connexion, may each set up some pretensions, and at least be a little troublesome; and above all, seeing that if all the merchandize necessary to supply the Missippi valley, and all the surplus agricultural products that may be produced in that country, together with its mineral products and manufactured articles, are to pass through the western canal, in addition to its natural and legitimate trade, agreably to the views exhibited in the introduction, it will frequently be totally inadequate to accommodate such a trade.—The locks will not be able to pass the boats, and probably some of the feeders will fail to give a sufficient supply of water. The state must therefore be put to the expense of erecting other locks along side of those first constructed, and perhaps in some instances be obliged either to find out or create new sources from whence to obtain a supply of water.

Now, in order to obviate all these inconveniences, and in some instances mortifying circumstances, we would with great deference propose the following magnificent plan.

Let New York abandon the idea of carrying on all the trade of the Mississippi valley, both export and import, by means of the western canal; and let her in conducting this branch of commerce, avail herself of those other vastly superior means which her southern neighbours in their wisdom are endeavouring to apply to their own uses. These are the Potomac and James River canals. But these southrons are slow in their movements, therefore let New York embrace the lucky moment, step in with a few odd millions, men, oxen, &c. and assist these people in the execution of their projects, or take the business entirely out of their hands, and complete them on her own account. When done, let her plant one little colony of merchants in the District of Columbia, and another at Richmond; where they will be able as we have already seen, to conduct this trade on behalf of the mother city, through these new channels, at a much smaller expense, and with far greater safety and certainty, than by way of the western canal. These merchants will of course import their merchandize direct to those cities, and export the western products thence to foreign parts. If this plan is adopted no time should be lost; we have

seen that New York can perform an immense quantity of work in a single month, but she can perform much more in twelve; may we not then hope to see in the rolling round of another year, these two little jobs completely executed, and the sagacious adopters of our plan sailing pleasantly down the full tide of successful experiment.

We will conclude our observations very much as we began, by expressing, with great sincerity, our respect for the state of New-York, for having as we believe, in the planning and execution of her canals, given a truly noble example to her sister states, by which they cannot fail to profit. But as we believed that she was generous and magnanimous, as well as enterprising and persevering, we did not suspect that she had it in prospect to monopolize the whole export and import trade of the great valley before mentioned, in which other states had fondly hoped to participate. And really, on reflecting a little more seriously on the subject, we begin to think she never had. That we may have been led into error, from the circumstance of one of her eulogists possessing, with talents of the first order, a temperament rather too sanguine. If so, it might seem that we have been engaged in an unnecessary discussion, and volunteered advice without an occasion. We will, however, take some comfort from the consideration, that we have advanced nothing but what has truth for its basis; and if those whom we supposed were immediately interested, are not profited by the discussion, perhaps it may be useful to others.

If we yield to this view of the subject, and we sincerely hope it is a correct one, then we have to advise Virginia, Maryland and the District of Columbia to use great exertions to complete the important works they have in prospect themselves, as early as possible; and that New-York, New-Jersey, Pennsylvania, Delaware and Maryland cordially unite in all proper measures to open the Raritan and Delaware canal, the Elk river and Christiana canal, and the Patapsco and Eastern Branch canal. Each of these should have at least seven feet of water throughout.

A Pittsburg trader might then purchase a part of his goods at New-York, put them on board a sloop fitted for the voyage, come on to Philadelphia, thence to Baltimore and Washington, adding what suited him at these places; then putting them on board of a canal boat, would find them at home within a few days of his own arrival on horseback, or in the stage. And by the same route, forward his own produce to the market where it would command the best price.

By the same line these cities might communicate with Norfolk, Petersburg and Richmond, without going to sea; and also through the Dismal Swamp canal, into the interior of North-Carolina.

These united efforts would exhibit a spectacle worthy of an enlightened people, living under the best of governments, who perfectly understand their own interests, and who are also actuated by the laudable desire that posterity may profit by their labors.

LOOKERS ON.

FOR THE AMERICAN FARMER.

On the use of Plaster.

Mr. Skinner,

We farmers generally prepare our clover land for a wheat crop, by ploughing down the second crop of clover the last of September, harrowing the ground the same way it has been ploughed, and then sow the grain and harrow it in, and plaster it on the surface either in the fall or spring. I have for the last two years tried a different method, and have found very superior advantages to the crop from it. In September when the second crop of clover is ripe, I turn in a full crop six inches deep, (having suffered no stock to range over and feed it down,) after first sowing on the clover lay from one and a half to two bushels of plaster to the acre, which is done just before it is ploughed down; then harrow the ground the same way it is ploughed; after which I sow the wheat and harrow it in well. I find by this mode of cultivation, that the plaster acts on the vegetable matter and decomposes it in a very short time, the fermentation which it causes in decomposing, creates a gas, which in passing through the clod to the surface, impregnates the mass with all its qualities, leaving the whole stratum enriched by its manuring quality, the roots of the plant shoot downwards, into a bed of manure. The bud grows off with great vigor and strength, and insures a good crop, unless indeed it be arrested by the fly, so destructive to our wheat crops. I find however by this process, the fly has less power to act, the vegetation in the spring of the year is so rapid that it gets a head of the fly and the injury is less perceptible. If this hint be useful to any one, I shall be gratified. G. W.

From the same.

Several years ago I paid a visit to the late doctor Charles A. Warfield of Anne Arundle County. It was in the month of August; on entering the lane that leads up to the house, on my right was the finest field of corn I had seen. It attracted my attention so much that I observed to the doctor that his corn crop, was superior to any I had ever seen, that I was astonished, as I had believed the ground was not very strong. He replied thath e had just returned from the Berkley Springs, and had passed over some of the best lands in Berkley and Jefferson counties, where he had seen no corn equal to his own. That he was satisfied with his own land, poor as it might be thought, and would not exchange it acre for acre for the best estate in Berkley county. That he was nearer to market than they were, and that he had discovered a secret by which he could make his poor lands produce corn equal to theirs, at a very small expense, he further said, "I have "reflected much on the effects of plaster upon "different soils and it appeared to me as likely "that by a combination of slacked ashes and "plaster that the effects would be very power-"ful. I ordered my servants to be careful to "preserve all the ashes made during the win-"ter, which being exposed to the rains during "winter, was sufficiently slack by spring. I "ordered the proportion of two bushels of "ashes to one bushel of plaster, mixed well to-"gether, which was carried out in the field, and "my little negro boys, each with his bag of the "mixture following the droppers, and with a "large oyster shell emptied the contents on "the seed as it was dropped and covered over; "this and this alone, said he, is the cause of my "corn being so much superior to any you have "seen." Recollecting this experiment, I was induced to try it, as did several of my friends in Baltimore and Frederick counties, to whom I had communicated it; all of whom have received equal benefit from the experiment. Mr. Robert Carnan stated to me that he had tried it on the poor knowles, in his corn field, and found his corn on them equal to his best ground.

When I am told why or how plaster acts, I will feel myself called upon to discover why it acts best when combined with ashes; until then I may content myself with stating what has happened in my practice, that others may benefit by a knowledge of the fact. G. W.

REPORT

Of the Committee on Agriculture, on the petition of Anthony Dey and James Macdonald.

MARCH 12, 1822.

Read, and the resolution therein contained concurred in by the house.

The Committee on Agriculture, to which was referred the petition of Anthony Dey and James Macdonald,

REPORT.

The petition alleges, that the said Macdonald, at the expence of the said Dey, has invented and constructed a new and useful machine for breaking and cleaning of hemp and flax, in an unwretted state, and that the said Dey has discovered the means by which hemp and flax, after being cleaned in an unwretted state in their machine, may be bleached by a process hitherto unknown; that they believe their method of dressing hemp and flax is of very great importance to the agricultural interest of the country, and, therefore, ask an extention of the exclusive right to make, construct, use, and vend to others to be used, the said invention and discovery.

From the evidence adduced by the petitioners, it appears, that they have invented a machine for breaking and cleaning hemp and flax, in an unwretted state, which is different in its principles and construction from any machine that ever has been used for that purpose, and that the said Dey has also discovered a process, never before used, for bleaching hemp and flax after it has been dressed in an unwretted state. And, also, it appears by the certificates of respectable gentlemen, who have witnessed the operation of the machine, that it will, by the power of one horse, with the assistance of one man and three boys, separate the integument and wood from the fibrous part of the hemp and flax plants, and clean the same, at the rate of one pound in a fraction of time, even a minute, fit for bleaching.

The petitioners further assure us, from the operation of one machine by horse power, with the attendance of one man and three boys, from 1,600 to 2,000 lbs. of unwretted hemp, or flax

may be cleansed in a day, yielding from 400 to 500 lbs. after it is bleached; and that, by the employment of another machine, which can be moved by the same horse, with the addition of one man and one boy more, from 800 to 1,000 lbs. may be cleaned at an expense not exceeding five dollars. And the committee are informed by Mr. Dey that one man can bleach 350 lbs. of hemp or flax, after it has been cleaned by their machine, in a day, at an expense of one dollar and seventy-five cents for the article which he uses in the process.

From these calculations, it appears that any quantity of unwretted hemp or flax, taken from the field, where it is raised, may be broke, cleaned, and bleached, at a rate of less than two cents per pound, delivered in a bleached state; and, allowing one cent per pound for the plant as it comes from the field, the whole cost, (except for the wear of the machine,) in growing this valuable plant, and breaking, cleaning, and bleaching it, will be less than six cents per lb. The committee are not informed what the cost of hatchelling or combing it, (which is done after it is bleached,) and preparing it for the manufacturer, would be, but presume it will not exceed two cents per pound. If the information the committee have received and their calculations are correct, either hemp or flax may be raised, dressed, and prepared for the best manufacture, at an expense of eight cents, and not exceeding, in any case, ten cents per pound.

By the experiments of the petitioners, and others, it is found that flax, dressed and hatcheled in the ordinary way, after it has been dew-wretted, yields nine pounds from one hundred pounds of the plant which has been wretted, being sixteen pounds less than is produced from one hundred pounds of unwretted flax, cleaned and bleached by the method which the petitioners have discovered. But no experiments have yet been made to determine the difference in the weight of the plant, before and after it is wretted; therefore, it cannot now be ascertained how much will be saved, in quantity, by this method of breaking and cleaning it before it is wretted. It cannot, however, be doubted, that the common process of wretting flax, especially by dew, destroys or injures many of its fibres, and, of course, the quality, as well as the quantity, must be, in some degree, diminished.

The committee have examined the machine, and have seen it operate, and believe it will prove one of the most important and valuable discoveries. The committee have, also, examined the hemp and flax which has been bleached in this new method and hatcheled, and find that the colored matter and harshness of the fibres are removed, and that the flax is rendered very white, and as soft and fine as silk.—This method of bleaching hemp and flax, it is believed, will be of great value to the grower and manufacturer of these plants.

Considering hemp and flax among the most valuable plants which can be cultivated in this country, and believing there is an abundance of soil in every state in the Union which is well adapted to their culture and growth, the committee are highly pleased with the invention and discovery of the petitioners. If hemp and flax can be raised in this country as easily and as cheap as in any other, and these inventions should prove as valuable as the committee believe they may, the cultivation of these plants will engage the attention of a large portion of the agriculturists, and become exceedingly important to the United States. It may be seen by the statement of the Secretary of the Treasury, of the quantity and value of merchandise imported, that, during the year ending on the 30th of September, 1821, 86,192 cwt. of hemp, valued at $510,489 (being about $120 per ton) hempen goods, of the value of $226,174; duck and sheeting, of the value of $894.276; cordage, of the value of 107,867 dollars; and linens, bleached and unbleached, of the value of $2,564,159, were imported into this country, amounting to $4,302,963, and that the whole value of the exports of domestic and foreign produce of the same kind, amounted only to $822,976, leaving the value of $3,479,187 in the merchandise produced from the hemp and flax plants consumed in this country.

As the petitioners desire an extension of time, and further protection than is secured under the patent law in its present form, and as it is the peculiar province of the Committee on the Judiciary to report any revision or amendment of that law which may be deemed necessary, your committee recommend the adoption of the following resolution:

Resolved, That the Committee on Agriculture be discharged from the further consideration of the petition of Anthony Dey and James Macdonald, and that it be referred to the Committee on the Judiciary.

Paper laid before the members of the Farmer's Society of Barnwell District, S. C. and by their request published in the American Farmer.

Remarks on the Rot in Cotton, and on the selection of seed roots for a crop of sweet potatoes.

GENTLEMEN,

Communications from our members, being one great source of improvement created by the formation of agricultural associations, I submit a few observations made the last season, with the more confidence, under the impression, that it will induce many of you to favor our society with the result of your experiments. Believing, that the rot in our short cotton, was connected with the seed; I was induced to plant a piece of new and rich land, with seed soaked in the following manner, and with strong solutions, viz. Green vitriol, blue vitriol, sulphur, salt and water, strong hickory ashes, lime, boiling water, some seed selected from plants which had no rot; and also some rows planted with common seed, to test the experiment. After frost, upon a careful examination, I could not perceive any difference as to the degree of rot. Every row was much injured.—In addition to this I planted in fifteen acres of third years land seed selected *after* the first frost, from plants, which had escaped the rot: this, as well as two acres, planted with seed soaked in salt pork pickle, and the same quantity of land planted with seed soaked in hot water, was as much affected with rot, as the other parts of the field planted with common seed, picked in before frost. It may not be improper to add, that, the rot was much worse with us the last season than ever; and that on an old field escaped, while on new land (half a mile from any other cotton) it was seriously injured—both planted with the seed of the same picking. This should induce us to be careful not to attribute apparent effects, to causes not fully tested by repeated experience. The opinion, that the rot is occasioned by the perforation of the *pod* by an insect, appears to be revived; and although I cannot substitute any satisfactory opinion, there appear still to be so many well attested facts in opposition to the idea, that I cannot agree with those who advocate that solution of the case. An old field, *adjoining* new land two years since with me, escaped while the new ground was greatly injured by it. Our active, zealous, and successful member, W. R. Bull, carefully collected, and then burned all the stalks of cotton. This field was then well ploughed in cold weather, and was as much injured by the rot as those fields where the stalks were listed in. Mr. Speed, jun. carried with him, a few quarts of cotton seed, of a crop nearly ruined with rot, from our district, to the Alabama. The cotton from this seed escaped, while the cotton upon the same plantation was much injured—and surely, we cannot suppose the discriminating power of the bug to be so great, as to distinguish the flavor of one kind of green seed cotton, from another. From some facts which have occurred in our district, as well as some communications to the Claremont agricultural society, it would seem well worth the attention of every *planter*, who has *old* seed to plant a part of his crop with seed of this description.

I repeated last season an experiment with the sweet potatoe. Two rows were planted with large seed, then two more with similar seed cut into two pieces—two more rows were planted with small seed; and then, two with similar seed cut into two pieces. The result was as follows: The large roots uncut were less propuctive than similar Roots cut; the small roots uncut were most productive, and the small seed cut, were least productive. The large roots cut and the small roots not cut, were much more productive than the other half of the ground planted with the large roots not cut and the small roots cut.

JNO. S. BELLINGER.

January 22d, 1822.

EFFECTS OF VARIOUS ARTICLES USED IN FATTENING SWINE, &c.

From the Dublin Evening Post, Sept. 1821.

Skimmed milk and pea, oat, or barley meal, rank first in point of excellence, with respect to the quality of the flock—milk-fed pork being superior to any other description, not only in delicacy of flavor, but in substance and weight,

none weighing so heavy in proportion as the milk-fed animal. Hence bacon of the dairy counties is superior. Milk will fatten pigs entirely, without the aid of any other food, a practice sometimes pursued in the dairies. Corn-fed pork is next in value—peas, oats and barley being the best adapted grain. Bean fed pork is hard, ill flavored, and indigestible: potatoe fed, it is loose, insipid, weighs light, and wastes much in cookery. To mix potatoes in the food of fattening pigs, is deceptious, deteriorating the pork in exact proportion. Hence the Irish pork and bacon are generally inferior to the English, and the market price so in proportion. The inferiority was, some years since, stated at three ounces per lb. and upwards, by an eminent dealer in Irish provisions. Clover fed pork is yellow, unsubstantial, and ill-tasted; fattened on acorns, it is hard, light and unwholesome; on oil cake, seeds or chandlers' graves, it becomes loose, greasy, and little better than carion; on butcher's offal, luscious, rank, and full of gravey, but of a strong and disgusting scent. Compared with the general consumption of pork, the real dairy fed meat bears a small proportion, and the sale of it in the Metropolis, is in very few hands, always commanding a superior price. In some parts of France they skin their pigs intended for fresh meat.

CATALOGUE

Of Fruit and Forest Trees, Flowering Shrubs and Plants; for sale by PRINCE & MILLS, at Flushing Landing, on Long Island, near New York.

CHERRIES.——50 Cents.

Early May, Early Richmond, ripe in May. May duke, May and June. Black tartarian, Black heart, White heart, White tartarian, June. Oxheart, Bleeding heart, Lukeward, Lundie Gean, Transparent Gean, Ronald's Large black heart, Yellow Spanish, Graffion, Black carroon, Late Spanish, China heart, Late duke, Mazard, or *honey cherry*, July. Carnation, best for preserving Herfordshire black, Red begareau, White Begareau, Elk horn, July and August.

Kentish, or *common red.*
Black morella.
Large English Morella
Plumstone morella
} for tarts, ripe in July and August.

Cornelian with long scarlet fruit, All-saints, American heart, September.

Maheleb or perfumed
Weeping
English double blossom
French do. with very large flowers
} ornamental.

PLUMS.——50 cents.

[This fruit is the most difficult to propagate of any cultivated in the nursery, being subject to many distempers and injurys to which other fruits are not liable; and, in budding and grafting, seldom more than one eighth succeeding, it is with difficulty that a tolerable assortment of them can be kept up by every exertion.

Jean hative, Chic saw, *ripe in* July. *Early scarlet, or cherry plum, Early damask, or Morocco, Precocedetours, Azure hative, *Early sweet damson August. Fotheringham. Blue pedigron, True prune, Red imperial, † Yellow egg, white magnum bonum, Marquis of Burgundy, Little queen Claudia, * Greengage, *Bluegage, Red gage, * White gage, Holland, † Large Orlean, *purple egg*, *† Smiths Orlean, Semiona, French copper plum, * Drap d'oer Cheston, Mengeron, *ripe in September.* * Apricot plum, St. Catharine, Mosseur, Muscle, American pigmy plum, *Imperatrice, *late red imperial*, October. Cluster, White damson, October and November. Winter damson, *frost*, December. Bolmer's celebrated Washington, *! Superior Green gage, very fine, September. Golden Drop, Early Coral, August. These two last are native fruit of great beauty and good bearers.

PEARS 31¼ to 37½ Cents.

[The variety of pears are so extensive, that the European and American sorts together would form a list of several hundred. A succession of the best kinds, or what the French term the *circle of pears* which will afford some of the best sorts for the table and culinary purposes throughout the year, may be selected from the following which are of the most approved kinds. An additional number have been received from Europe, a list of which will be published it the next catalogue. Those marked M are melting pears——those marked B are best for baking &c.]

Primitive, Little musk, or supreme, Early sugar, Green chissel, M Red muscadelle, or twice bearing, M Sugartop July, or harvest pear, ripe in July, Jargobella, M Skinless, *early russelet*, M Cuisse madame, Avorat or *August Muscat*, M Fondant d'ete *Summer melting pear*, Windsor, M Summer Russelet, Late green chissel, M Gross Blanqette, M Muscat robin Bell pear, *Musk flavoured summer bon cretien*, M Summer Bergamot, M *ripe in August*. Vergalieu, Doyenne, or *St. Michael*, M Salviati, Brown Buerre, M Royal summer Perfumed pear Mouille bouch or *mouth water*, Culotte de suis *striped pear*, Rouselet de Rheim, M Bloody pear, Golden Beurre, M Cassoletta, Lowree's bergamot, M Autumn bergamot, M Brocau's bergamot, M Gansel's bergamot, M Grey Monsieur Jean, September. Poir de prince, or the *princes pear* Melting pear of Brest, *fondant de Brest*, M Woolly, or Sage leaved, Seckle, M Doyenne gris, *late virgalieu* M Autumn bon cretien, Vine, Autumn bounty, M October. Crasane, M Vergoleuse, or *winter vergalieu*, M November and December. Winter thorne, M Colmar, M Swans egg, M Armadot, M St. Austen, L'Echassair, M Louisbon, M Chaumontelle, *winter beurre*, M *ripe in* December and January. St. Germaine. This is a fine melting pear, of excellent flavour it is in eating order from November till April. Brown St. Germaine, M do. Winter russelet, M Catillac, B Easter bergamot, *terling pear*, B Holland, or winter bergamot, M December and January. Royal winter, M German muscat, M Poir d'auch, M St. Martial, M Winter bon cretien, B Uvedale's St. Germaine, B Double flowering, B Frankneal, or *golden end of winter*, January to March. Spanish bon cretien, Treasure pear, January to June. Sarasin, November to July. Orange red, July Alduira, Besberry, Barland, for Perry, said to afford a liquor equal to champaign.

A few select kinds are propagated as Dwarfs, on Quince stocks, at 50 cents.

APPLES.——31¼ to 37½ Cents.

Large early, or *harvest apple*, the earliest of all apples. fit for tarts in June, and when ripe is an excellent table fruit, Junating, *ripe in* July. Large early bow, English codlin, August. Large red and green sweeting weighs a pound, Large white sweeting, Red caville, Summer pearmaine, *ripe in* September. Aromatic Russet, Large fall pippin, or pipplin, weighs a pound, Famagusta from Cyprus, Late bow, Autumn pearmaine, October. French red reniette, Loan's pearmaine, Quince apple, Surprize, yellow without and red to the core within, Siberian crab, with small crimson and yellow fruit, English nonpareil, American nonpareil, *doctor apple*, Æsopus Spitzenburgh, Flushing, Newtown, Seeknofarther, White calville, Royal russet, Lady apple, *pomme d'appe*, November to March Ladies finger November to June. Rose apple Ribstone pippin, English golden pippin, Pommegree, Craam, Golden reinette, November to March. Winter sweet pearmaine, Ruckman's, Federal, Golden, Royal, Large Rhode-Island greening, Red winter sweeting, January Priestly, Double flowering Chinese apple, one of the most beautiful of flowering trees, Yellow Bell flower, Black apple, Swaar, Vandevere, Monstrous pippin, or New York gloriamunda. This apple has weighed 27 ounces, Dickskill, Newark king apple, Wine apple, *ripe in* March. Large green Newtown pippin or best flavour, Merrygold, Camfield, for cider, Wine sap, fine for table or cider, November to June. Hayloe's crab for cider or table, October. Burlington greening, November to March. Paradise apple, July. Green everlasting, Red everlasting, Winter russeting, *Boston or Novascotia russeting*, these are excellent keeping apples, the fruit having been kept perfectly sound for more than a year.

Herefordshire red streak, Hughe's red Virginia crab Red sweeting, Harrison's celebrated Newark cider apple for cider.

PEACHES——31¼ to 37½ Cents.

[The variety of Peaches are so extensive that the number might easily be increased to two hundred; but as it is generally preferred to have a moderate number of the best sorts to ripen in succession, the following have been selected on account of their size, flavour, or time of ripening, from among the best sorts imported from Europe, as well as those which have originated in America. Those marked * are esteemed for their flavour—those marked † are remarkable for their size—thoose marked C Clingstones.]

*White nutmeg, *early avant*, Scarlet nutmeg, * Yellow nutmeg *ripe in* July, * Green nutmeg, early ann, Earliest red clingstone *Red rare ripe B. Prince's red rare ripe, * White rare ripe August, *† Large *early york* Alberge, or yellow rare ripe, Early Newington, C Petit mignon Early purple, Royal George, Royal Charlotte, *Royal Kensington. *† Old mixon *† Malta * Gross mignon *Sweet water, Bellchevreous, * Old Newington, C Montaubon, Noblesse, *†Pine apple, C Swalsh, White magdalen *† Red cheek malagatune White malagatune Bellegarde, or Gallande * †Kennady's Carolina, *early lemmon*, C †Orange peach, White blossom, Western Newington C *† Green Catharine, Teton de Venus, † President, * Orange clingstone, † Congress clingstone, (very fine) * Late purple smooth skin, like a nectarine, Vanguarde, *ripe in* September. Large white clingstone † Spanish clingstone, † Late admirable, C Late catharine, Blood peach, * Double blossom, or *rose peach*, Red Magdalen *Lemon clingstone (the largest of peaches) † Barcelona yellow clingstone, *† Heath clingstone, most excellent, but the tree must be kept in cultivated ground, and the fruit ripened in the house; they will keep till November, and are by many thought superior to all other peaches, †Large red October clingstone, Mammoth clingstone, Nivette, C † Blood clingstone, *claret clingstone*, October white clingstone, October yellow clingstone, October. † Pompone *monstrous pavie* a beautiful late red clingstone, Gough's late red clingstone, White winter, C October and November. Green winter, C November and December. Algiers yellow winter clingstone.

NECTARINES.—31¼ to 37½ Cents.

Early yellow, *ripe in* August. Fairchild's early, C Elrudge, Argyle, C Golden; C Newington, C Aromatic, Red Roman, C Vermash, C Peterborough, C Green, C September. White, October.

ALMONDS.—37½ Cents.

Hard shell, Thin shell, or ladies almond, Soft-shell, Jordan almond, Double flowering, or dwarf almond.

APRICOTS—31¼ to 37½ Cents.

Early masculine Large early, *ripe in* July Brussels, Blanche, Gold Blotched, Breda, do Algiers, Orange, Grover's breda, Peach apricot Moor park, Black, August.

MULBERIES ——37½ Cents.

Large black English, White or Italian, Black American; Chinese paper mulberry.

QUINCES.——37½ Cents.

Large orange *ripe in* September and October Pear in October, Portugal (see Dwarf,) Winter do, in January to March.

GRAPE VINES 37½ Cents,

French chocolate-coloured oval grape a great bearer, Red chasalas, White chasselas, Black sweet water, White do, Black Madeira, White Frontinac, Bland's Virginia native grap, Early white muscadine, or summer white sweet water, fine flavoured, and very great bearer Alexander's grape, hardy, and great bearer, *ripe in* September.

FIGS.—50 Cents,

Brown (the best bearer,) Large white,

GOOSEBERRIES.—25 Cents.

[Near two hundred sorts of this fruit have been received from England, from which the following have been selected on account of their large size, time of ripening, or flavour; but it will be in vain to plant the finest gooseberries, if attention is not paid to them after they are set out. There is no fruit tree that requires so rich a soil; they should have rotten manure dug in around them every autumn, and the ground kept mellow and cultivated, and the bushes trimmed, and tops thinned out moderately every year. If planted in low, wet, or shady situations, or in too confined a garden, the fruit is apt to become mouldy, which immediately stops the growth.]

Mammoth green gooseberry, producing the largest fruit of the kind known in America 50 cents.

Red, Alcock's king, Rumbullion, Duke of York, Warrington red, Ironmonger, Shaw's Billy Dean, Red Bulfinch, Large amber, Smooth claret.

Green, Early green hairy, Green Gascoign, Green Walnut, Satisfaction, Green Dorrington, Green chissel, Green Oak, Duke of Bedford, Ribbed green.

Yellow. Golden drop, Rocket's yellow, Long yel, low, Golden seeding, Royal yellow, Rough yellow, Prince of Orange, Hutton's goldfinch.

White. White elephant, Snowball Highland white, White heart, Callebank's white, White crystal.

CURRANTS. 25 Cents

Large Dutch red, large white do, Large Champaigne, pale red, *ripe* January to March, American black, 18½ cents, Large black English, August and September, Lewis's fragant currant, discovered by Lewis and Clarke in passing through Lousiana to the Pacific Ocean, 50 cents.

RASPBERRIES,

English red, best for raspberry brandy, 8 cents, English white, 8 cents, Brentford red 12½ cents, do. white 12½ cents, English cane, or twice bearing, 8cents, July and October, Large white Antwerp, 25 cents, July and August, Large red ditto, 25 cents do, American black, 8 cents July, ditto white 12½ cents do, Canada, or purple rose flowering, 8 cents, August Barnet. a new English sort, with high flavoured fruit, 25 cents.

STRAWBERRIES.

Morrissania, *early scarlet*, 25cts per doz *ripe in* May,

HONEY SUCKLES.—25 Cents.

Alazea, or Standing American honey suckle with pink flowers, ditto late flowering white fragrant, English early flowering, English woodbine honey suckle, White monthly, very fragrant, Scarlet trumpet monthly, variegated-leaved honey suckle, (see Hautboys.)

DWARFS.

Dwarf apple and pears, of several varieties, fifty cents each,

ASPARAGUS.

The best roots, from two to three years old, 1 dollar per hundred,

SCIONS FOR INGRAFTING,

Scions of the various fruit trees, packed in the most complete manner with earth and moss, 50 cents per dozen.

FOREST TREES OF LARGE GROWTH, ORNAMENTAL FOR THEIR FOLIAGE OR FLOWERS.

European white flowering horse chesnut, 50 cents, Spanish chesnut, with very large fine eatable fruit 50 cents, American ditto, 25 cents, Weeping willow, 37½ cents, Upright green ditto, 37½ cents, Yellow willow, 37½ cents, Tulip tree, one of the most ornamental trees, 50 cents, Fox's white oak, raised from the seeds of the two trees under which George Fox, the original Quaker, preached, which trees are still growing at this place, 37½ cents, American oaks, twenty varieties, 25 cents, Liquidamber, or maple-leaved sweet gum, 37½ cents, Lombardy poplar, 25 cents, Athenian ditto, 25 cents. Balsam ditto, or broad-leaved Tacmahac, 37½ cents, Carolina ditto, or cotton tree, 37½ cents, Aspen poplar, 37½ cents, Canada ditto. 37½ cents, Honey locust, or three thorned acacia, 37½ cents, Common locust, 25 cents, Western plane, Sycamore or Buttonwood, 25 cents, English linden, or Lime tree, a much admired European ornamental tree, very hardy fifty cents, American ditto, or Basswood, 50 cents, American Bird cherry, 50 cents, European larch, or deciduous fir, very ornamental, 50 cents, Madeira nut, or English walnut, 50 cents, Round black walnut, twenty-five cents, Long ditto, 25 cents, Illinois, or Pecan nut, 50 cents, Hickory nuts of varieties, 25 cents, Sassafras, 25 cents, Weeping birch, 37½ cents, Canada ditto, 25 cents, Black American ditto, 25 cents, White, or Paper ditto; 37½ cents, English elm, very ornamental, 50 cents, Scotch elm, ditto, 50 cents, Pride of India, or head tree, with purple flowers and beautiful foliage, 50 cents, Catalpa, much admired for its showy flowers and large foliage, 37½ cents American cypress, a tree of fine appearance, and one of the largest growth, 50 cents, European white ash, a tree of very stately and rapid growth, 37½ cents, Sugar maple, 37½ cents, Scarlet flowering ditto, with clusters of showy flowers, in the month of March, 25 cents, Norway maple, 50 cents, Kentucky coffee, or bonduc, a tree of singular growth 50 cents.

FOREST TREES OF MIDDLING GROWTH, ORNAMENTAL FOR THEIR FOLIAGE AND FLOWERS.

European mountain ash, or Roan tree, one of the most admired ornamental trees, on account of the beauty of its foliage, and its clusters of scarlet fruit, which remain for many months, 50 cents. American ditto, 50 cents, European autumn flowering alder, 37½ cents, Magnolia tripetala, or umbrella tree, with very large white flowers, 50 cents, Magnolia glauca, with very fragrant flowers, 50 cents, Magnolia acuminata, or cucumber tree, of elegant growth, and blue flowers, 50 cents, Magnolia, macrophylla, with very large leaves and the most splendid flowers, white, with purple centre, 2 dollars, Magnolia auriculata, or ear leaved magnolia, 2 dollars, magonlia cordata, yellow flowering, 3 dollars, Scarlet flowering horse chesnut, 50 cents, Yellow do, 50 cents, Willow leaved oak. 50 cents, Black Canada willow, of singular appearance, 37½ cts. English basket do, 37½ cents, Coccygria, Venetian Sumnach, or purple fringe tree. This beautiful tree is covered during the summer months with tufts of russet coloured down, which forms the most singular ornament of the garden, 50 cents, American larch, or deciduous fir, a much admired tree, 50 cents and many others.

ORDERS for the within named Trees, Shrubs, and Plants, left at Messrs. HULL & BOWNE's No. 146 Pearl-street, New-York, or at the nursery, will be immediately attended to; and, if wanted for Europe, or any part of America, they will be packed in the most perfect manner, and delivered in New-York by water, free of freight.

THE FARMER.

BALTIMORE, FRIDAY, MARCH 22, 1822.

In concluding the third year of our Editorial labours in the cause of AMERICAN AGRICULTURE, we shall be very brief in addressing our Subscribers, as we hold it to be decorous in a Journal which is the property of *its patrons*, to say as little as possible, about *self*—we hope we have done the country "some service," and an augmentation of patronage, and of correspondents of the highest order of intelligence, gives us reason to believe that we can yet do more in the ensuing year—The Paper will retain its present size and shape, and will undergo some improvement, so as to give it, when it comes to be bound at the end of the year, more of the *book form*. We shall moreover, for more ready reference sake, besides the usual full index at the end of the year, give each subscriber an Index *half yearly*. And now we have only to entreat our subscribers to be *punctual in the remittance of what is due. The loss of a great number of copies by fire, and the heavy expense of republishing a new Edition of* 1500 *copies now in press, urges us to make this earnest appeal, not only to their sense of justice, but to their friendly dispositions in behalf of the Editor and his labours.* Is he deceived in flattering himself that his appeal made in honesty and candour, will be met with the attention it deserves?

DEFRERED ARTICLES.

As many valuable articles have been communicated which we have yet found it impossible to insert, accompanied with letters, which unavoidably remain unanswered, we deem it proper in this number, to give a list of such of these articles as we find at hand. There are doubtless, others which do not at this moment present themselves to our view or recollection. Before this time many of our valuable correspondents will have learned to feel satisfied, that though their communications are often delayed for a long time, it does not follow that they are forgotten or will be neglected.

List of articles deferred, and which will appear as soon as occasion may offer in the ensuing, fourth volume:

REMARKS ON THE PREPARATION OF MORTAR, BY D. OLMSTEAD, Professor of Chemistry and Mineralogy, in the University of N. Carolina.

SEVERAL EXCELLENT ESSAYS AND MODERN TREATISES ON THE NATURAL HISTORY AND MANAGEMENT OF BEES, WITH INSTRUCTIONS FOR CONSTRUCTING THE APIARY HIVES, &c.

CONSTRUCTION OF COW HOUSE AND MANAGEMENT OF FARM YARD.

ON FLAX, several.

ISAAC BRIGGS AND JOSEPH DELAPLAINE, ON THE IMPORTANCE OF DEEP TILTH; DESCRIPTION OF AN IMPLEMENT INVENTED TO PROMOTE THAT OBJECT, WITH ILLUSTRATIVE DRAWINGS, &c.

POTOMAC ON THE BEST TIME AND MANNER OF GATHERING CORN, &c. &c. in reply to F.

INTERNAL Improvements in South Carolina.

FAMILY Spinner—Straw Cutter—Woad—Hemp—WOOL—Hydraulic Pump—Italy and Mediterranean Agriculture—Saint Foin, Clover and other Grasses—Rail Ways—Culture of Carrots—Fruit Trees—Delaware and Chesapeake Canal—Wooden Wicks—Culpepper County Farming—Improvement of the Susquehannah Navigation—Potomac ditto, &c. &c.

PRICES CURRENT.

Flour from the waggons, superfine, $6 to 6¼—Wharf flour $6 per bbl.—Wheat, white, 133 to 135 cents—Red, 130 to 132—Corn, white, 70 to 71—yellow, 64 to 65—Rye, 65—Barley, 60—Oats 35 to 45—Beans, 150 cents per bushel, wholesale—*Grass Seeds*, Clover, $8—Timothy, $5—Orchard, 3½—Herds, 3 per bushel, at retail—Salt, coarse, 54 to 65 cents—Liverpool ground, 50—do. fine, 40 to 44 per bushel—Plaster of Paris, ground, $7 per ton or 125 cents per bbl.—Mess Beef, $11—do Pork, 13—Herrings, 2½ to 2¾—Shad, 5½ to 6 per bbl—Codfish, 3 to 3½ cts—Hams, 11—Cheese, 11—Butter, 20 to 31¼ per lb.—Eggs, 10 to 12 cents per doz.—Wool 20 to 50—Cotton, Georgia Upland, 15 to 17 cents per lb, —no Louisiana or Alabama in market—Tar, 175 cts. —Turpentine, 175 to 200—Rosin, 150 per bbl.—Spirits of turpentine, 37 to 40 cents—Varnish, 30—Linseed Oil, 75 to 80 per gallon—Tobacco, old crop Maryland, no yellow, or fine red in market—good Patuxent red 6 to $9—common 4 to 5—second 1½ to 3 per 100 lb. in demand—Virginia, a few hhds. from Richmond were sold this week at $6—and some from Kentucky at $5 per 100 lb.

Printed every Friday at $4 per annum, for JOHN S. SKINNER, Editor, by *Joseph Robinson*, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for Bineing, with proper directions, promptly attended to.